



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,093	03/02/2004	Robert Scott Winsor	0918.0269C	1178

27896 7590 11/14/2006  
EDEL, SHAPIRO & FINNAN, LLC  
1901 RESEARCH BOULEVARD  
SUITE 400  
ROCKVILLE, MD 20850

EXAMINER

WANG, QUAN ZHEN

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

4

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/790,093	WINSOR, ROBERT SCOTT	
	<b>Examiner</b>	<b>Art Unit</b>	
	Quan-Zhen Wang	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 July 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-40 and 44-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-40 and 44-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. In view of telephone interview with Applicant's representative conducted on November 7, 2006, the Final Office Action mailed on October 13, 2006 has been withdrawn. A new Final Office Action is as follows.

#### ***Claim Rejections - 35 USC § 112***

2. Claims 1,3-40, and 44-47 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 24, 44, and 47 recite the newly added limitation of "a single light emitting diode (LED)". Nowhere did the specification as it was originally filed support the newly added limitation. Therefore, the newly added limitation is considered as new matter.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-10, 12-17, 19-31, 33-38, 40, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doucet et al. (U.S. Patent US 5,786,923) in view of Liou (U.S. Patent US 5,623,363) and further in view of Buser et al. (U.S. Patent US 4,361,911).

Regarding claims 1, 24, and 47 Doucet teaches a method for light transmit across a free space (fig. 1, 100), the method comprising: generate a substantially phase incoherent beam of light (column 4, lines 52-56); collimating the phase incoherent beam of light (fig. 8, optical antenna 710); externally modulating the beam of light (fig. 8, beam modulator 752); and propagating the phase incoherent collimated beam of light across the free space (fig. 8, to/from optical router unit). The system of Doucet differs from the claimed invention in that Doucet does not specifically teach that the light source for the incoherent light beam is a single LED coupled to a single mode fiber. However, it is well known in the art to generate incoherent light beam using a single LED coupled to a single mode fiber. For example, Liou discloses a light source comprising a single LED coupled to a single mode fiber (fig. 1; column 2, lines 66-67 and column 3, line 1). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a single LED coupled to a single mode fiber, as it is taught by Liou, into the system of Doucet as the light source in order to provide phase incoherent light beam. Doucet and Liou further differs from the claimed invention in that Doucet and Liou do not specifically disclose that the system reduces atmospheric scintillation when transmitted across the free space and optimizes energy efficiency of the light transmission explicitly. However, it has been well known in the art

Art Unit: 2613

that atmospheric scintillation can be reduced by using incoherent source. For example, Buser discloses that the effect of atmospheric scintillation can be reduced by using incoherent source (multiple wavelength source) (column 6, lines 36-47). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to use the concept of atmospheric scintillation reduction, as it is taught by Buser, in the system of Doucet and Liou in order to reduce the atmospheric scintillation. As a matter of fact, the modified system of Doucet and Liou inherently reduces atmospheric scintillation when transmitted across the free space and optimizes energy efficiency of the light transmission because the light source is incoherent. As to claim 47, Doucet further teaches modulating (fig. 8, beam modulator 752) the beam of light (fig. 8, light source 754) with data to be transmitted from source to a destination across the free space, and the distance can obviously be of at least one kilometer.

Regarding claims 3-5 and 25-27, the system of Doucet differs from the claimed invention in that Doucet does not specifically teach that the system includes various claimed methods of generating incoherent beams of lights. However, the examiner takes Official Notice that the methods of generating incoherent beams of lights in claims 3-5 and 25-27 are well known light generating methods in the art. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate any of the methods in claims 3-5 and 25-27 into the system of the Doucet as the light source of the system, wherein the claimed differences involved to the substitution of interchangeable or replaceable equivalents and the reason for the selection of one equivalent for another was not to solve an existent problem, such

Art Unit: 2613

substitution has been judicially determined to have been obvious. *In re Ruff*, 118, USPQ, 343 (CCPA 1958).

Regarding claims 6-7 and 28-29, the system of Doucet differs from the claimed invention in that Doucet does not specifically teach that the system includes a light amplifier for amplifying the incoherent beam. However, the examiner takes Official Notice that amplifying incoherent light using a light amplifier, such as an Erbium doped fiber amplifier, is well known in the art. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a light amplifier, such as an Erbium doped fiber amplifier, in the system of the Doucet in order to amplify the incoherent beam.

Regarding claims 9-10 and 30-31, the system of Doucet differs from the claimed invention in that Doucet does not specifically teach that the system includes filtering the incoherent beam to reduce the bandwidth of wavelength spectrum, or bandwidth limiting the incoherent beam into a plurality of bandwidth channels. However, the examiner takes Official Notice that is well known in the art to filter an incoherent beam to reduce the bandwidth of wavelength spectrum, or to limit bandwidth of an incoherent beam to form a plurality of bandwidth channels. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate filters in the system of the Doucet in order to filter the incoherent beam to reduce the bandwidth of wavelength spectrum, or to limit bandwidth of the incoherent beam to form a plurality of bandwidth channels.

Art Unit: 2613

Regarding claims 12 and 33, Doucet further teaches that the system includes collimating the beam of light with one of a conventional optical mirror (fig. 8, optical antenna 710).

Regarding claim 13, Doucet further teaches focusing the beam of light onto a primary focal plane of a telescope (fig. 8, lens 780).

Regarding claim 14, Doucet further teaches directing the optical beam towards an optical receiver using active pointing techniques (fig. 8, active optical control system 760).

Regarding claims 15 and 36, Doucet further teaches directing the optical beam towards an optical receiver using static pointing techniques (column 17, lines 39-48).

Regarding claims 16-17, and 37-38, Doucet further teaches to modulate the phase incoherent beam of light to encode data upon the beam of light (fig. 8, beam modulator 752).

Regarding claims 19, and 40, Doucet further teaches to modulate WDM channels within the beam of light (column 8, lines 13-20).

Regarding claim 20, Doucet further teaches to receive the incoherent beam from free space (fig. 8, signals to/from optical router).

Regarding claim 21, Doucet further teaches tracking the receiving beam of light using active pointing and tracking techniques (column 17, lines 49-54).

Regarding claims 22-23, Doucet further teaches to detect one of light and darkness within the received beam of light (inherent), thereby to produce a received

Art Unit: 2613

data stream and demodulate the received data stream (fig. 8, Beam demodulator 772 and receiver 770).

Regarding claim 34, Doucet further teaches that the propagating optics is a telescope (fig. 8, optical antenna 710).

Regarding claim 35, Doucet further teaches that the propagating optics further includes an active pointing and tracking module to control the direction in which the incoherent beam is propagated (fig. 8, beam alignment detector 762 and active optics control system 760).

5. Claims 11 and 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doucet et al. (U.S. Patent US 5,786,923) in view of Liou (U.S. Patent US 5,623,363) and Buser et al. (U.S. Patent US 4,361,911) and further in view of Meadows (U.S. Patent US 5,381,250).

Regarding claims 11 and 32, the system of Doucet, Liou, and Buser differs from the claimed invention in that Doucet, Liou, and Buser do not specifically teach that the system includes collimating the beam of light with a gradient index lens. However, a gradient index lens is well known in the art, and using a gradient index lens to collimate a beam of light is also well known in the art. For example, Meadows discloses to collimate a light beam using a gradient index lens (column 3, lines 47-55). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to use a gradient index lens to collimate the beam of light, as it is



Art Unit: 2613

taught by Meadows, in the modified system of Doucet, Liou, and Buser in order to direct the beam of light to a receiver with sufficient light intensity.

6. Claims 18 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doucet et al. (U.S. Patent US 5,786,923) in view of Liou (U.S. Patent US 5,623,363) and Buser et al. (U.S. Patent US 4,361,911) and further in view of Yonenaga et al. (U.S. Patent US 5,543,952).

Regarding claims 18 and 39, the system of Doucet, Liou, and Buser differs from the claimed invention in that Doucet, Liou, and Buser do not specifically teach to use an interferometer to toggle the light beam to at least one of on and off. However, it is well known in the art to toggle (modulate) the light beam using an interferometer. For example, Yonenaga discloses to modulate the intensity of the light beam to one of on and off using an interferometer (column 3, lines 52-67 and column 4, lines 1-2). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to use an interferometer to toggle (modulate) the intensity of the light beam to at least one of on and off, as it is taught by Yonenaga, in the modified system of Doucet, Liou, and Buser in order to encode the light beam.

7. Claims 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doucet et al. (U.S. Patent US 5,786,923) in view of Liou (U.S. Patent US 5,623,363) and Buser et al. (U.S. Patent US 4,361,911) and further in view of Huggins (U.S. Patent US 4,799,797).

Regarding claim 44, Doucet teaches a transmitter for use in an optical light beam data link capable of transmitting a beam of light across a free space, comprising: a light source to generate a substantially phase incoherent beam of light (column 4, lines 52-56); a modulator to encode data upon the phase incoherent beam of light (fig. 8, beam modulator 752); a collimator (fig. 8, optical antenna 710) to collimate the incoherent beam of light. The system of Doucet differs from the claimed invention in that Doucet does not specifically teach that the light source for the incoherent light beam is a LED coupled to a single mode fiber. However, it is well known in the art to generate incoherent light beam using a LED coupled to a single mode fiber. For example, Liou discloses a light source comprising a LED coupled to a single mode fiber (fig. 1; column 2, lines 66-67 and column 3, line 1). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a LED coupled to a single mode fiber, as it is taught by Liou, into the system of Doucet as the light source in order to provide phase incoherent light beam. Doucet and Liou further differs from the claimed invention in that Doucet and Liou do not specifically disclose that the system reduces atmospheric scintillation when transmitted across the free space and optimizes energy efficiency of the light transmission explicitly. However, it has been well known in the art that atmospheric scintillation can be reduced by using incoherent source. For example, Buser discloses that the effect of atmospheric scintillation can be reduced by using incoherent source (multiple wavelength source) (column 6, lines 36-47). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to use the concept of atmospheric

Art Unit: 2613

scintillation reduction, as it is taught by Buser, in the system of Doucet and Liou in order to reduce the atmospheric scintillation. As a matter of fact, the modified system of Doucet and Liou inherently reduces atmospheric scintillation when transmitted across the free space and optimizes energy efficiency of the light transmission because the light source is incoherent. The system of Doucet, Liou, and Buser further differs from the claimed invention in that Doucet, Liou, and Buser do not specifically teach that the light source is a fiber-optic coupled superluminescent light emitting diode. However, a fiber-optic coupled superluminescent light emitting diode is a well-known optical source in the art. For example, Huggins used a fiber-optic coupled superluminescent light emitting diode (fig. 7, SLD 170) as the light source for the multiplexed optical sensor system. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to use a fiber-optic coupled superluminescent light emitting diode, as it is taught by Huggins, as the light source in the modified system of Doucet, Liou, and Buser in order to generate wavelength stable light beam for the communication system.

Regarding claim 45, Doucet further teaches that the system comprising a propagating optics to propagate the phase incoherent collimated beam of light across the free space (fig. 8, optical antenna 710).

Regarding claim 46, Doucet further teaches that the propagating optics further includes an active pointing and tracking module to control the direction in which the incoherent beam is propagated (fig. 8, beam alignment detector 762 and active optics control system 760).

***Response to Arguments***

8. Applicant's arguments filed one July 31, 2006 have been fully considered but they are not persuasive.

Applicant argues, "Doucet does not describe the atmospheric issues, such as speckle and scintillation, in a free-space optical communication system. As a result, Doucet does not describe any techniques to mitigate these atmospheric effects. ... Doucet does not expand on the advantages of any particular type of light source." But Applicant admits, "Doucet describes a laundry list of light sources and in this list includes the phrase 'or other coherent and/or non-coherent light'. Doucet, column 4, lines 53-57." (See pages 9-10 of the Remarks). However, "the discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342,1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Because Doucet does disclose using a "non-coherent light" (phase incoherent beam) for the communication system, as it is admitted by Applicant, the system itself mitigates the speckle and scintillation effects, whether Doucet aware it or not. Thus the claiming of a new use, new function or unknown property, which is inherently present in the prior art does not necessarily make the claim patentable. In *re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). In *re Crish*, 393 F.3d 1253, 1258, 73 USPQ2d 1364, 1368 (Fed. Cir. 2004).

Applicant then argues, "Liou relates to a semiconductor light source, such as a light emitting diode (LED) that is capable of producing either single or multi-mode light. Liou makes no teaching or suggestion of using the light source in connection with free space optical communications. Liou suffers from other insufficiencies." However, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). For the instant application, Doucet discloses a communication system utilizing incoherent light sources, and Liou is cited to show that a LED light source is well known incoherent light source in the art.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Doucet explicitly discloses the use of a incoherent light source for the system and an LED is a such source. It is clear that Doucet teaches and suggests the combination inexplicitly.

Applicant further argues, "Liou does not teach or suggest that an LED can be effectively externally modulated at very high data rates, such as multi-gigabit rates. Moreover, Liou does not teach or suggest that an LED can be effectively amplified for

Art Unit: 2613

use in a free-space optical communication system and still retain its incoherence (Claims 6 and 28 of the present application). Liou also fails to describe that a SLED can be filtered to fit within a particular Spectral channel or bandwidth, such as an ITU compliant channel (Claims 9 and 31 of the present application).” However, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. *In re Swinehart*, 169 USPQ 226 (CCPA 1971); *In re Schreiber*, 44 USPQ2d 1429 (Fed. Cir. 1997). The arguments do not differentiate the prior art references from the claimed invention in structure, rather argue over operating conditions or functions of the system. Such conditions or functions can be performed either inherently and/or obviously by the system prior art system since the prior art system has the same structure as the claimed invention. In fact, these arguments are contradictory with Applicant’s invention. If an LED cannot be modulated and cannot be filter to fit ITU grids, Applicant’s invention will not be enabled because the claimed invention uses LED as the light source for the communication system.

Applicant further argues, “Liou makes no teaching or suggestion that an LED has qualities beneficial for a free-space optical communication system, and consequently does not acknowledge or discuss the atmospheric issues of turbulence, speckle, scintillation, etc.” As it has discussed above, whether Liou realizes or not, when an LED (incoherent light source) is used for the communication system, it inherently reduces the atmospheric scintillation. “The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art’s functioning, does

not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342,1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999).

Applicant further argues, "Buser describes a laser retroreflector system, and in one embodiment, the simultaneous use of multiple coherent light sources. In particular, at column 6, lines 36-47, Buser describes that "multiple wavelength operation" can "reduce the effects of atmospheric scintillation" where that "[m]ultiple wavelengths  $\lambda_1, \lambda_2, \dots \lambda_m$  could be simultaneously transmitted such that incoherent addition of the different wavefronts for each  $k$  would reduce the fluctuation of intensity across the receiver plane." Buser goes on to describe a method for generating multiple wavelengths using a "laser gain medium", that is, with a laser structure that produces coherent light at multiple wavelengths. Buser, column 6, lines 48-62. That is, Buser teaches the simultaneous use of multiple coherent light sources each at a different wavelength." However, Buser is cited only to show the concept of using incoherent light source to reduce "atmospheric scintillation", as it is stated in above rejection of the claims. The incoherent light source in the modified prior art system is the LED. Liou further clearly illustrates in fig 1 and explicitly states in column 2, lines 59-62 that the LED is a single LED.

In conclusion, the combination of Doucet, Liou, and Buser discloses every limitation of the claimed invention and Examiner clearly establishes a prima facie case of obviousness for all of the pending claims.

Applicant also provides a declaration under 37 CFR 1.132 of Dr. Rabinovich, stating "Prior to my discussions with Mr. Winsor concerning his idea related to

Art Unit: 2613

atmospheric scintillation reducing techniques ... it did not occur to me that a device, such as a SLED, which produces phase incoherent light, would reduce atmospheric scintillation associated with FSOC. There are many possible factors that contribute to scintillation and only some of them might occur due to temporal coherence. A detailed understanding of what causes scintillation is still an area of active research. As a result, the effects of reducing temporal coherence have, to my knowledge, not been predicted." However, the declaration does not change the fact that combination of the prior art references discloses all the claimed limitations. Whether "a detailed understanding of what causes scintillation is still an area of active research" or not, the modified system of Doucet and Liou inherently mitigates the scintillation effects. "The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property, which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). *In re Crish*, 393 F.3d 1253, 1258, 73 USPQ2d 1364, 1368 (Fed. Cir. 2004). In addition, "atmospheric scintillation" effects had been known, and efforts had been spent to reduce "atmospheric scintillation" effects, as disclosed by Buser.

### ***Conclusion***



Art Unit: 2613

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Swanson et al. (U.S. Patent US 5,062,150) teach a fiber-based free-space optical system using both coherent and incoherent optical system. Milano et al. (U.S. Patent US 5,870,215) disclose a compact infrared identification and communication assembly using incoherent infrared light.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

Art Unit: 2613

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qzw  
11/8/2006

  
JASON CHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600